

REMARKS/ARGUMENTS

Reconsideration of this application is respectfully requested.

In response to the rejection of claims 4 and 11-21 under 35 U.S.C. §112, 2nd paragraph, claims 4, 11 and 13 have been amended so as to eliminate the phrase "as the case may be". Accordingly, there can be no possible ambiguity that the claims require functionality to actually exist which, upon receipt of a response, iteratively sends enquiry messages to addresses contained in the response to that enquiry message or in a response to a subsequent enquiry message.

The only basis for this rejection having now been eliminated, it is believed that all outstanding formality issues have now been resolved in the applicants' favor.

Since the above amendments (including a typographical correction to claim 1) are directed solely to formality issues and present the claims in better condition for consideration on appeal (e.g., eliminating all formality-based issues), entry of same is believed to be appropriate under 357 C.F.R. §1.116 and such is respectfully requested.

The rejection of claims 1-4, 6-8, 11-12 and 16-18 under 35 U.S.C. §103 as allegedly being made "obvious" based on Bonsma in view of Triantafillou, Kwon and Adar is respectfully traversed.

The Examiner seems to be using the claim wording as a shopping list and to have scanned the four disparate prior art documents to find, in different contexts, phrases alleged to correspond to each phrase of applicants' claim 1. In so doing, the Examiner has not succeeded in finding the claimed invention, i.e., the specific combination of features that represent the invention recited in claim 1.

The phrases quoted by the Examiner are often too short to represent any complete feature. Some claim phrases are misquoted and taken out of context of the

Erwin BONSMMA, *et al.*
Serial No. 10/583,964
March 15, 2010

feature which they are argued to partially define. A part of a cited document is sometimes quoted as reading onto different features of the claim in a way that is self-contradictory. The result is, as explained in more detail below, that the Examiner alleges to have found a number of features in the cited documents that are not described there – and the Examiner has not found teaching of the invention in the cited documents.

Bonsma describes the SWAN distributed computer network devised by the present applicants/inventors. The Examiner correctly identifies a significant number of aspects of the present invention that are not found in Bonsma – to which list should be added the linking data of claim 1 for which there is no clear description to be found in Bonsma. If the Examiner is of the opinion that specific text in sections 3 and 3.1 of Bonsma describe this linking data, the Examiner is respectfully requested to identify it with particularity.

The Examiner is thanked for providing a “response to arguments” section in the last office action. The Examiner’s comments in this section are of assistance in identifying possible misunderstandings or unclarity relating to the arguments previously presented. Below are some remarks aimed at removing such unclarity or misunderstandings.

The Examiner is right to point out that a node may be a logical entity. However, this is to miss the point that was being made. Irrespective of how the functions described in Triantafillou are distributed among nodes, Triantafillou does not describe all the functions provided by the distributed computer system of applicants’ claim 1.

Triantafillou describes a single set of clusters of nodes with a single function: to serve retrieval requests (i.e., to respond to a request by supplying the requested document – see 3.1, first paragraph). This corresponds most closely to the later recited

node in claim 1 of the (second) virtual network, i.e., the virtual network for item look-up, which:

(a) in response to an enquiry message that identifies another of the items, forwarding the message to another node for item look-up of the network;

(b) in response to an enquiry message that identifies the item with which the node for item look-up is associated, generating a reply message including the identified item.

As defined in claim 1 in part (ii) immediately preceding the above-quoted part, the "network" referred to here (i.e., the second virtual network) is a virtual network for item look-up corresponding to a single virtual directory. This second virtual network may be compared to a cluster of nodes which functions solely to respond to a request by supplying the requested document (although the second virtual network differs from the clusters of Triantafillou in other ways).

The clusters of nodes do not correspond to the earlier recited (primary) virtual network for virtual directory look-up. In particular, nowhere in Triantafillou is there an indication that the clusters of nodes act to provide the following features of claim 1:

(a) in response to an enquiry message that identifies another of the virtual directories, forwarding the message to another node for directory look-up of the network;

(b) in response to an enquiry message that identifies the virtual directory with which the node for directory look-up is associated, generating a reply message identifying the computer that the node for directory look-up is located on.

Translating this into the language of Triantafillou, this would correspond to a cluster of nodes in which a node of the cluster responds to a request identifying a cluster with which it is associated (i.e., by use of a cluster-id) by returning the identity of

Erwin BONSMMA, *et al.*
Serial No. 10/583,964
March 15, 2010

the computer at which the node is located; and in which the node responds to a request identifying a different cluster by forwarding the request to another node.

No such capability is described in Triantafillou where a cluster only redirects requests which identify items (not clusters) and only to other cluster nodes – i.e., nodes of the same cluster.

The Triantafillou cluster nodes act to provide the requested document (if the document is stored on the node) or to find another node within the same cluster that can supply it. This is achieved by storing cluster metadata describing which documents are stored by which cluster nodes. The metadata is described at section 3.2.

In the discussion of Triantafillou on pages 8-9 of the last office action, the Examiner makes heavy use of the metadata description of section 3.2 and the query processing of section 3.3. However, the Examiner uses the same sections of Triantafillou to represent different features of applicants' claim 1. The various interpretations placed by the Examiner on features of Triantafillou are listed below. These will be seen to be, in part, mutually exclusive or mutually contradictory. They do not read onto the features of applicants' claim 1 when read as a whole and in context, as alleged by the Examiner. The Examiner is asked to clarify which feature of the claim is alleged to be represented by each of the following sections of Triantafillou.

From section 3.3 Target node:

The Examiner seeks to identify the target node with

“first node for directory look-up”

i.e., a node of the (primary) virtual network for virtual directory look-up. However, this seems to be at odds with the text of paragraph *a* which indicates that the target node acts to find a number of documents (as opposed to virtual directories) matching the query.

According to the presently claimed invention, item look-up is performed by the nodes of the second-recited virtual network – not the nodes of the first-recited virtual network which perform virtual directory look-up.

Paragraph *b* describes forwarding the query if not enough documents are found at the first node, and paragraph *c* describes returning the results. Nothing in the description of the target node is relevant to a node of the primary virtual network for virtual directory look-up.

The Examiner also seeks to identify target node steps *a-c* with

wherein the second node is for item look-up” [actual claim wording: “a node of a virtual network for item look-up”].

This appears to conflict with the Examiner’s concurrent allegation that these same paragraphs describe a node of the primary virtual network for virtual directory look-up. Paragraphs *a* and *b* appear to describe item look-up. The Examiner points out that a node may be a logical entity. However, the target node is only described in relation to a single look-up function, and it is not understood how this single function can be read onto the different functions of directory look-up and item look-up. The Examiner is, therefore, requested to indicate whether the description of the target node is viewed by the Examiner as describing the activity of item look-up or directory look-up.

The Examiner also seeks to identify target node paragraph *c* with

in response to an enquiry message that identifies the virtual directory with which the node is associated, generating a reply message identifying a computer that the node for directory look-up is located on [underscored part omitted by the Examiner].

The Examiner is requested to explain how the wording of paragraph *c*, which contains no reference to “computer” or “computer identity” reads onto generating a reply

message identifying a computer. Moreover, it is pointed out that the results returned according to paragraph *c* relate to the documents found in paragraphs *a* and *b*, not computer identifiers.

The Examiner's allegation regarding target node paragraph *c* is a good illustration of how the "shopping list" approach fails. In seeking to break the claim down into phrases that represent less than a single feature, the Examiner deviates from the task of judging the merits of the invention as an integral set of related features towards a process of finding random phrases in unrelated passages spread among several disparate documents.

From section 3.3 Requesting node:

The Examiner seeks to identify requesting node paragraph *a-c* with

in response to an enquiry message that identifies another of the virtual directories, forwarding the message to another node for directory look-up of the network.

It is noted that the "network" referred to here is the network for directory look-up. This activity would logically seem to be more appropriate to the receiving node, as it describes the action of a node receiving a request that is intended for a node in a different directory. In any case, requesting node paragraphs *a-c* do not teach forwarding a request. If the requested node does not exist, the enquiry will fail, but there is no teaching of forwarding the failed enquiry.

The Examiner seeks to identify requesting node paragraphs *a-b* with

a node of a virtual network for item look-up...comprising... linking data comprising addresses of [wherein] other such nodes for item look-up [are] each associated with an item assigned to the same virtual directory, whereby said linking data together define a plurality of virtual networks for item look-up, each of which networks corresponds to a respective

different virtual directory [underscored parts omitted by Examiner; parts in [] inserted by Examiner].

The requesting node is characterized at paragraphs *a* and *b* by mapping document keywords to semantic (i.e., document) categories and finding the clusters of nodes to which those semantic categories are mapped. No mention can be found in paragraphs *a* and *b* of linking data comprising the addresses of nodes.

The requesting node is further characterized at paragraph *c* by selecting a node at random. Arguably, selection at random does not require the linking data which is not, in any case, described with reference to the requesting node.

If the Examiner has located specific text in these paragraphs which teach the linking data, it is requested that it be particularly specified where this can be found.

The Examiner also seeks to identify requesting node paragraphs *b-c* with

send to a node of the virtual network for directory look-up an enquiry message identifying the directory [emphasis added].

It is noted that, elsewhere, the Examiner seeks to equate the text of paragraph *b* with the activity of a node of the second virtual network for item look-up. The Examiner points out that a node may be a logical entity. However, the Examiner is asked to indicate whether the text of paragraph *b* (which must relate to a single activity category) relates to the activity of item look-up or directory look-up?

Kwon describes a hierarchical network of ordinary "leaf" nodes and supernodes (see Figure 1). The file search described in Kwon as the "3-step" method involves storing on supernodes information (directory record) relating to a file. The directory record is stored in a so-called "file directory" on each supernode. In relation to:

(b) in response to an enquiry message identifying the virtual directory with which the node is associated to generate a reply message identifying the computer.

It is presumed that the Examiner is referring to the first section of 3.2, at the bottom of the first side, i.e., “[a] node first starts the publishing procedure by sending a message to the supernode to which it is directly connected. The message contains the following data record < ... IP address> [emphasis added]”.

Here Kwon is not describing a process to locate a desired data item, but the publishing of the details of a file to allow it to be located more easily in a later search stage.

The skilled reader would learn from Kwon that, in order to enable finding a file, one should publish details of the file to supernodes, which do not hold the file. The details published according to Kwon include the address of the node that does hold the file.

The present invention does not include such a publishing step. One of ordinary skill in the art at the time the invention was made would see no incentive to introduce a similar publishing step into Bonsma or Triantafillou – because they each function efficiently in their own respective modes without the need for supernodes and require no publishing procedure(s).

The teaching of Kwon is also incompatible with the operation of the present invention – according to which sending a request for a virtual directory associated with a data item to a node that is associated with the virtual directory (and therefore stores one or more of the desired data items) results in the node that is associated with the virtual directory returning the identity of the computer on which the node is located.

This allows the retrieval means of the claimed invention to simply send to the identified computer an enquiry message identifying the data item and to receive the desired item in reply.

Kwon does not teach the claimed invention and involves an extra overhead not incurred by the present invention (e.g., in setting up and maintaining additional, so-called supernodes as a central look-up for file locations).

For the following section of claim 1:

software operable

(a) in response to an enquiry message that identifies another of the items [i.e., not an item "with which the node is associated"], forwarding the message to another node for item look-up of the network.

Text is added in [] in order to put the above part of the claim in context. The phrase "*another of the items*" stands in contrast to "*the item with which the node for the look-up item is associated*" which occurs in the immediately following part (b) of this part of the claim. The phrase "*another of the items*" clearly defines an item that is not an item "*with which the node for item look-up is associated*".

The supernodes of Kwon do not function in this way, i.e., they do not decide whether a request is for data that they hold and do not respond by either providing the data item or forwarding the request to another node. In detail, the Examiner relies on the "step-by-step" method of Kwon and seeks to characterize this method as "forwarding if local look-up fails". But what is described in Kwon is not local look-up (i.e., checking to see if the node itself has the data item requested), but remote look-up (i.e., look-up carried out by a remote supernode).

Erwin BONSMMA, *et al.*
Serial No. 10/583,964
March 15, 2010

The presently claimed invention has no supernodes that store information about items with which other nodes are associated. The nodes of the distributed computer system presently claimed respond to enquiries according to information relating to their own status – i.e., whether they have the sought-after data item.

For the following section (b) of claim 1:

(b) in response to an enquiry message that identifies the item with which the node for item look-up is associated, generating a reply message including the identified item

the Examiner now refers to the “3-step” method. The Examiner quotes the argument to the effect that it would have been obvious for one of ordinary skill in the art at the time the invention was made to combine these two disparate teachings (i.e., the “step-by-step” method and the “3-step” method) from the same document to arrive at features of the claimed invention.

This argument fails for at least the simple reason that it did not occur to the authors of Kwon, not just ones of ordinary skill in the art, but workers who were leading advances in the field, to combine these aspects that Kwon devised as parts of separate and distinct approaches. It cannot, therefore, be maintained that one of ordinary skill in the art would be motivated to combine these teachings.

As the Examiner has already recognized, even the proposed patchwork selected combination of Bonsma/ Triantafillou/Kwon does not teach:

*“wherein a reply message includes the item;
and wherein at least one computer has retrieval means to:
ii) upon receipt of a reply message thereto, to send to a computer an enquiry message identifying the item; and
iii) to receive the reply message containing the item.”*

Erwin BONSMMA, *et al.*
Serial No. 10/583,964
March 15, 2010

As with earlier parts of the office action, it will be noted that this paraphrasing by the Examiner does not exactly track the actual claim language of applicants' claim 1. It appears that the Examiner has conveniently changed the wording to suit the assertions being made.

In any event, Adar does not supply the previously noted deficiencies of the first three references. Furthermore, the Adar teaching at page 5 with respect to "get/push messages" does not appear to have anything to do with receiving a query identifying a directory and an item within that directory – nor to responsively send to a node of the virtual network for directory look-up an inquiry message identifying the directory – let alone the latter two integers of claim 1 which require sending a reply message back to the computer identified in the reply message, an enquiry message identifying the item and, subsequently to receive the reply message containing the item.

In short, the Examiner's gerrymandered reconstruction of this fourth "combined" reference is no better than that of the first three. And, once again, even if the hypothesized "combination" of selected bits and pieces from all four of these references is somehow "combined" into an operable system of some undefined sort, it would still fail to teach or suggest the combination set forth in applicants' claim 1.

The need to rely on fragments taken from four different documents in order to locate text which can be separately compared with each component phrase of claim 1 indicates the novel and non-obvious nature of the claimed invention. None of the cited documents describes or even suggests the present invention. The various citations – even when combined in the complex relationship proposed by the Examiner – do not provide the specific combination of features devised by the present inventors and do not provide the special benefits provided by the claimed invention. Moreover, the proposed combination of teachings lacks motivation. Without the present claim wording as a guide, there is insufficient incentive for one of only ordinary skill in the art at the time the

Erwin BONSMAS, *et al.*
Serial No. 10/583,964
March 15, 2010

invention was made to combine the many unrelated parts selected in the precise way that is proposed by the Examiner – even though that proposed combination also fails to approximate the present invention.

The above deficiencies noted with respect to claim 1 are also present with respect to independent claims 2, 6, 7, 11 and 13. Accordingly, it is not necessary at this time to identify and/or discuss additional deficiencies of this allegedly “obvious” four-way combination of references with respect to other aspects of the rejected claims. Suffice it to note that, as a matter of law, it is impossible to support even a *prima facie* case of “obviousness” unless the cited prior art teaches or suggests each and every feature of each rejected claim.

The rejection of claims 5, 9-10 and 13-15 under 35 U.S.C. §103 based on Bonsma/Triantafillou/Kwon and Adar and in further view of “official notice” is also respectfully traversed – for reasons including at least those already discussed above.

In addition, the Examiner’s “official notice” that “such” use of nesting categories for grouping purposes was well known in the art at the time of the invention is respectfully traversed. While the use of “nested” categories for grouping purposes may well have been generically known in many other contexts, it was not known in the relevant context of the claimed invention. Accordingly, the Examiner’s assertion of official notice that “such” use was known in the art is respectfully traversed, and the Examiner is respectfully requested to document or withdraw this reliance upon official notice in accordance with standard MPEP practice.

Furthermore, the Examiner’s assertion that it would have been obvious to “utilize any known categorization technique including nesting category descriptors because it would have enabled practicing the Bonsma/Triantafillou/Kwon/Adar system” is respectfully traversed. The Examiner’s assertion literally asserts that any known categorization technique would have been “obvious” to use – and then inexplicably adds “because it

Erwin BONSMMA, *et al.*
Serial No. 10/583,964
March 15, 2010

would have enabled...” The Examiner is respectfully requested to explain how literally “any” known categorization technique “would have enabled...” the four-way reconstructed system proposed by the Examiner. Why, for example, would “nesting” be required to have enabled practicing the proposed system?

The Examiner’s discussion of newly cited Christenson in the passage bridging pages 20 and 21 is not understood since there is no outstanding ground of rejection at this point which includes Christenson.

Similarly, the discussion regarding claim 14 at page 21 of the office action is not understood. The Examiner there referred to a five-way combination of references, the fifth one being something called “ON”. What is the “ON” reference? And, in any event, there has been no stated ground of rejection which relies on the “ON” reference.

The rejection of claims 19 and 20 under 35 U.S.C. §103 as allegedly being made “obvious” based on Bonsma/Triantafillou/Kwon/Adar and in further view of Bonsma WO ‘669 is also respectfully traversed.

Fundamental deficiencies of the first four references have already been noted above with respect to a parent claim. The Bonsma ‘669 reference does not supply those deficiencies. Accordingly, it is not necessary at this time to discuss the additional deficiencies of this allegedly “obvious” five-way combination of references with respect to other aspects of the rejected claims — for reasons already noted above.

The rejection of claim 21 under 35 U.S.C. § 103 as allegedly being made “obvious” based on Bonsma/Triantafillou/Kwon/Adar/Bonsma ‘669 and further in view of Yemini ‘889 is also respectfully traversed.

Fundamental deficiencies of the first four of the six cited references have already been noted above. Bonsma ‘669 and Yemini ‘889 do not supply those deficiencies. Accordingly, for reasons already noted above, it is not necessary at this time to detail or

Erwin BONSMA, *et al.*
Serial No. 10/583,964
March 15, 2010

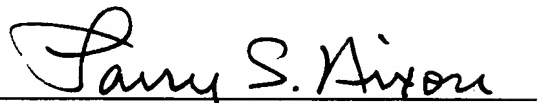
discuss additional deficiencies of this allegedly "obvious" six-way combination of references.

Accordingly, this entire application is now believed to be in condition for allowance and a formal notice to that effect is respectfully solicited.

Respectfully submitted,

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By:

A handwritten signature in cursive script, reading "Larry S. Nixon", is written over a horizontal line.

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